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ON THE FIRST PRIMARY IN CERTAIN PASSERINE BIRDS.

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In many Passerine birds the first primary is exceedingly small as compared with the second; and in the case of the families *Fringillidæ*, *Motacillidæ*, and *Hirundinidæ*, this feather has been authoritatively declared to be absent. As far back as Jerdon's time, and probably at a much earlier date, it was stated that these groups of birds possessed only nine primary quill-feathers; indeed, Dr. Jerdon notes this as the character which distinguishes the *Ploceinæ* and *Estreldinæ*, which are admitted to have a small first primary, from the other groups which he includes in his extended family *Fringillidæ*.*

In Seebohm's 'History of British Birds' we read:—"The Finches form a large group of birds which may at once be distinguished from all the other subfamilies of the *Passeridæ* by their combination of a stout conical bill with the entire absence of a first primary."

Of the Wagtails he says:—"The absence of a bastard or first primary sufficiently distinguishes them from the Thrushes, Tits, Crows, or Shrikes; and also from the Waxwings and Starlings, in which the bastard primary, though very small, is always present." Of the *Hirundinidæ* he says:—"They have no bastard primary."

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* He included the Ploceine Finches, the Tanagers, and the Larks.

Some months ago the question arose between us as to the principal distinguishing characters of the Fringilline and Ploceine Finches, and (naturally) this difference of number in the primaries was the first structural point to be considered. Having a wing of the common Siskin and several wings of Waxbills and Mannikins, we examined the two types, and (to our unbounded astonishment), discovered the first primary well developed in both, but with this difference:—In the Fringillid bird the first primary was shorter than, and therefore completely concealed by, its upper covert; whereas in the Ploceid bird the first primary projected beyond its covert.

Thinking it quite impossible that, if this fact were common to all examples of all species of the two families, it could have been so long overlooked, we have gradually accumulated the wings of various species in which the first primary was declared to be absent, and we are bound to say that, not only have we never failed to find it in any species which we have examined, but that in some species, such as the Sparrow (*Passer domesticus*) and the Canary (*Serinus canaria*), it is far better developed than in many of the Ploceid Finches.

We have examined wings of the following species:—

FRINGILLIDÆ. — *Chrysomitris spinus*, *C. tristis*, *C. totta*; *Serinus icterus*, *S. canaria*, *S. leucopygius*; *Carduelis carduelis*; *Acanthis cannabina*, *A. rufescens*; *Fringilla cœlebs*, *F. montifringilla*; *Passer domesticus*; *Pyrrhula pyrrhula*; *Guiraca cærulea*; *Chloris chloris*; *Cardinalis cardinalis*; *Alario alario*.

MOTACILLIDÆ. — *Motacilla melanope*; *Anthus trivialis*, *A. pratensis*.

HIRUNDINIDÆ.—*Hirundo rustica*.

Being anxious to make no mistake, we were not content to examine single examples, but, wherever possible, carefully removed the lower coverts from several examples of each species; in no single instance did we fail to discover the small first primary, although in *Motacilla melanope* it is very minute and almost linear (narrowly hastate); in fact, we found it best developed in the Sparrow, and worst developed in the Grey Wagtail. Even yet, it seemed so strange that a feather which we always discovered easily should have been so long overlooked, that we were not convinced, but determined to obtain undeve-

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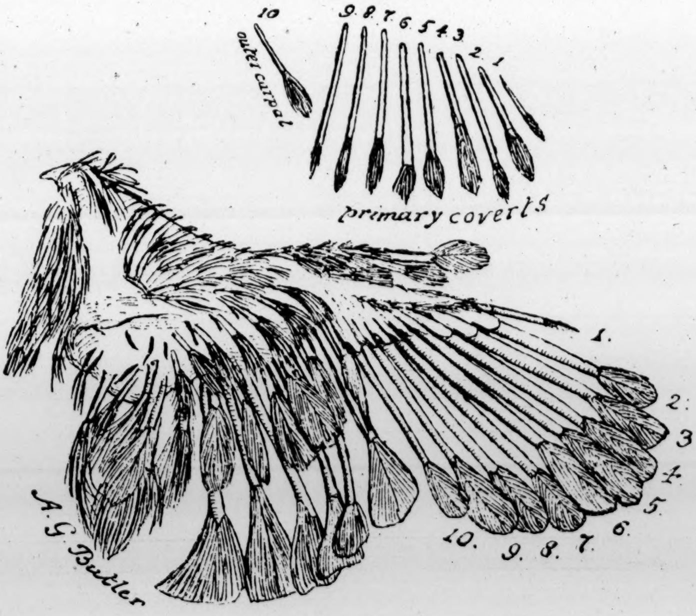
loped wings of some species, in order to make quite certain of our fact before recording it.

From several nests of *Passer domesticus*, all of which unfortunately contained eggs only, one egg (incubated about nine days) contained a young bird from which a wing could be obtained. When placed under the microscope nine primaries were already commencing to appear from their follicles, but the first primary, the follicular depression of which was well defined, had not yet appeared.

A few days later, several young Canaries, which died seven and nine days after leaving the egg, were found to have all ten primaries, with their coverts, perfectly clearly developed; we were thus compelled to come to the conclusion that the accepted definition of these three families, *Fringillidæ*, *Motacillidæ*, and *Hirundinidæ* should be modified, and that, instead of the statement that the first primary is *absent*, the following should be substituted:—"The first primary is concealed within its coverts." It seems to us that the only explanation of the supposition that no first primary existed, is that the student has in every instance removed the concealed primary when taking off the under wing-coverts to trace the origin of the quills.



Wing of Sparrow ten days old, the primary coverts removed. Enlarged about one-third.

The examination of the wings of a Sparrow, recently taken from the nest when about ten days old, seems clearly to indicate that the so-called outer carpal covert replaces the tenth primary covert, and is homologous to that covert (which is absent); it certainly is identical with the feather which we accept as the tenth covert in the Canary and in other true Finches, as, for instance, in the Virginian Cardinal.

In the *Icteridæ,* which are said to differ from the Starlings in having only nine primaries, we have found the first primary in the Silky Cowbird, Brown-headed Troupial, Bobolink, Red-breasted Marsh-bird, Military and Yellow-shouldered Troupials, and Brazilian Hangnest; indeed, the first primary, with its upper covert, are so conspicuous in these large birds, that they can frequently be seen without even using a needle to separate them from the second primary. In the *Motacillidæ,* where the first primary is very small and lies close to the second, it might easily be overlooked, but that a feather nearly (if not quite) half an inch long should have escaped observation is inexplicable.

WHITE WAGTAIL (*MOTACILLA ALBA*) IN IRELAND.

By Robert Warren.

So very little was known of this Wagtail in Ireland, that William Thompson had never met an Irish specimen, and he thus speaks of it in his work on the 'Birds of Ireland':—"Is believed to be at least an occasional visitant. It is included on the following testimony. In a letter to me from Mr. R. Ball, dated Dublin, June 19th, 1846, it was stated that a few days before, when at Roundwood, he had seen a specimen of the true *M. alba*, as distinguished from *M. yarrellii*. He remarked:—'We watched it for some time, though at a short distance from us, with a small telescope used for such purposes; its beautiful plumage was very distinct from that of the common species, and its habit much more sedate than usual with Wagtails; "it wagged" but little, and walked about demurely. I am sure that I have often seen the species before. As the bird was not obtained, its occurrence would not be inserted here without my perfect reliance on the knowledge and acute observation of my informant."

Such was all the meagre information that was obtained by Mr. Thompson of this bird in Ireland, and nothing more was heard of the species until April 25th, 1851, on which day I had the good fortune of shooting, on the island of Bartragh, the first authentic specimen known to have been obtained in Ireland. I met the bird in a field where some men were sowing barley, and as it followed the harrows, picking up insects. My attention was attracted by its quiet demeanour and light grey plumage, so different from that of our native Wagtails, and after observing it for some time it occurred to me that it might be the rare *M. alba*, so, drawing the larger shot from my gun that I had for Rabbits, I put in a charge of No. 8, and knocked the bird over at the first shot. On picking up and examining it, I felt confident that it was the rare Wagtail; but, to be certain of its identity, I sent the specimen to my old friend the late Dr. J. R. Harvey, of Cork, and he wrote to say that he "had no doubt of its being the true *M. alba*, but that, unfortunately, it had been so long delayed in the Post Office, that on its arrival it was unfit for preservation, and to his great disappointment the specimen was lost."

For several years after nothing more was seen or heard of the White Wagtail, until April 29th, 1893, when visiting Bartragh with some friends, we met a pair of Wagtails feeding on a little wet flat piece of sand at the base of the sand-hills, and about 300 yards from where I shot the bird in 1851. These birds walked about quietly, with none of the restlessness of the common species, for probably they were tired after their long flight from Spain or Africa. After observing them for some time with my glass, and admiring their lovely plumage, I shot one, the other bird flying right off out of our sight, and we did not see it again. This specimen is now in the collection of the Museum of Science and Art, Dublin.

Having shown the bird to Mr. A. C. Kirkwood (who resides on the island), I asked him to keep a sharp look-out for these Wagtails every season during the month of April; and last season, towards the end of that month, he observed a beautiful bird in the light grey plumage, a short distance from the place where I met the pair in 1893. After looking at it for some time with his glass, he went for his gun, but in the meantime a heavy rainfall coming on drove it away to shelter, and when he returned to the place the bird had disappeared. However, this season he was more fortunate, for on two occasions he met the White Wagtail on the island, and obtained three specimens out of each flock.

He met the first lot of five birds on April 30th, feeding in a field lately sown with oats, and his attention being attracted by their light grey backs and white cheeks, he brought his glass to bear on them, observing them for a long time, as they (like the birds previously seen) walked quietly about the field, with none of the restlessness so constantly shown by the common Wagtails. He then got his gun and shot three fine birds, which he kindly brought to show me. One, a perfect type of the

M. alba, was too much injured by the shot to keep for a specimen, but the other two I sent to Mr. E. Williams, of Dublin, for preservation.

Again, on May 10th, Mr. Kirkwood came across a small flock of fifteen birds, resting on a bare stony slope of a small hillock, near where he saw the bird last season. On looking at them with his glass, he observed that all were in the light grey plumage, but on approaching for a closer view they all rose from the hill, and pitched on the shore amongst the rocks and stones. Just then, a heavy shower coming on, he said it was amusing to see them seeking for shelter from the rain under the lee of the rocks. Sometimes two or three birds might be seen huddled together on the sheltered side of rocks or large stones, evincing a decided aversion to the rain wetting their plumage. These birds appeared to Mr. Kirkwood to be resting, and not inclined to feed, probably being tired after struggling against the stiff gale of N.N.W. wind that had been blowing for two or three days past; and that when passing over Bartragh they dropped down to rest a little before continuing their flight across the sea to Iceland, which was evidently their destination. Mr. Kirkwood obtained three birds out of this flock, and more lovely specimens of the *M. alba* I never saw, the intense black of the breast and head contrasting so strongly with the snow-white of the forehead, cheeks, and sides of neck, which extended down almost to the shoulders.

One of the specimens was very badly injured by the shots, but the other two were sent to my friend Mr. Howard Saunders, of London, who presented them to the Natural History Museum. It is a strange fact that up to the present (except on the Island of Bartragh) there is no authentic record of the capture of *Motacilla alba* in any other part of Ireland; and why Bartragh Island should be so favoured it is difficult to say. However, I may suggest that the birds met with on Bartragh were on their way to their breeding-haunts in Iceland; and as the direct course from their winter-quarters in Spain to Iceland would be across the sea, right over Ireland, and the straight line of flight passing over Bartragh and Killala Bay, is it not more likely that the tired birds would rest on Bartragh, the last point of land between them and Iceland, rather than on any of the more inland parts of the country? It appears to me very evident that these birds, holding such a westerly course, were going direct to Iceland; for birds making Norway and Lapland their destination would keep more to the eastward on their course, a few, perhaps, touching the English coast, while the bulk of the flight would keep along the Dutch and Danish coasts.

Addendum.—Through inadvertence, I omitted the fact that in 1893 a specimen was obtained on Achill Island, Co. Mayo, by Mr. Sheridan, of Slieve Mort Hotel. It may interest some readers to know that, two or three days after the flight seen by Mr. Kirkwood on May 10th had left the island, they were succeeded by a little party of five birds, which remained up to the 19th, on which day I had the pleasure of seeing three of them; and on the 26th Mr. Kirkwood, calling here, informed me that a pair of the Wagtails were still on the island, haunting an ivy-covered cliff, as if going to build there. However, I do not think it likely that they will breed, and that they were only detained from continuing their northern journey by the long-continued north-west winds.

ZOOLOGICAL RAMBLES IN THE TRANSVAAL.

By W. L. Distant.

Barberton.—To leave the high veld as seen around Pretoria and Johannesburg, respectively 4500 ft. and 5600 ft. above sea-level, and to travel to Barberton with its altitude of only 3000 ft., backed by thickly wooded hills, is a great treat for a naturalist. Formerly, as when I first visited the State, the journey consisted of a long and weary coach-ride, but in 1895 I covered the distance in twenty-four hours, thanks to a combination of rail and coach, though long since then the passenger travels the whole distance by rail. The scenery becomes very fine after the descent is made into the Crocodile River valley, but this grand stream now contains, or did at the time of my visit, comparatively few fish. The reason is soon told. During the construction of the railway, which in parts almost follows the course of the river, it was found cheaper to give the Kafirs a couple of dynamite cartridges, with which they could obtain a fish diet, than to supply them with the usual allowance of "mealies." The completion of this railway was a very slow process, and the river thus became almost depopulated. The contractor who gave me this information, and who had himself constructed that part of the line, related an instance of Kafir ignorance or stupidity in using these cartridges. An individual, fresh to the work, lighted the fuse of both cartridges, one of which he held in his hand, while he watched the effect of the other he had thrown in the water, with a result that is unnecessary to describe. But it will be long before the Crocodile River is again well stocked with fish; the use of the dynamite cartridge is somewhat prevalent in Transvaal rivers, and if the vast railway enterprise only now commencing in Africa is conducted on similar lines, ichthyologists will soon have to record a vast diminution in specimens, if not in species.

At Crocodile Poort, where rail was exchanged for coach, and a six or seven hours' drive to Barberton was then a necessity, a small store existed where passengers obtained refreshment. While breakfasting here on my return journey, some Kafirs brought in a very healthy young Lion cub, with the skin and skull of its mother, which they had recently killed on the opposite side of the river, thus proving conclusively that Lions were still found in this part of the Transvaal, a fact of which I had been in some doubt. Securing Lion cubs is a dangerous proceeding. I heard that a short time previously some Kafirs had found unprotected cubs, and had crossed the river three times with them to destroy their spoor, as they felt the parents would undoubtedly follow. They safely secured their retreat with the cubs, but the infuriated Lions came across some innocent Kafirs, and killed three of them. I endeavoured in vain to purchase this young specimen from the storekeeper, but found £5 no inducement. Both the skins and skulls of Lions are occasionally brought into Pretoria market by the Boers, and during the scarcity of game caused by the rinderpest more than one was killed in spots much nearer civilization than was considered probable.

But there are other noxious animals in the vicinity. I had a chat with a colonial who had embarked in Transvaal farming, and listened to a tale of woe. Porcupines (*Hystrix afra-australis*) were devastating his potatos; they ran between the rows of "earthed-up" plants, where they easily burrowed and secured the roots; a colony of Baboons visited at uncertain intervals his "mealie" crop, as did also some "Wild Pigs," probably *Sus africanus*, whilst Locust swarms frequently ravaged the farm. My friend Dr. Percy Rendall, who resided near, and in, Barberton for some two years, and was an enthusiastic and successful naturalist and collector, has recorded the Antelopes of the district in "Field-notes on the Antelopes of the Transvaal."*

Barberton is a quiet little town now, with memories of vanished glories and perished prosperity as a mining centre. Lofty and well-wooded mountains form its background; in front, one gazes over an undulating scene; the surface is waved, and looks like a petrified stormy sea. In the town no one seemed prosperous, and no one hopeless, and there was a Micawber-like trust in some vast future gold industry. The climate is subtropical—the temperature reached 128° F. during my visit (January)—good pineapples can be grown, but the peaches are very inferior. Few flowering plants were to be seen, as the season was too far advanced; ferns were abundant in number and species, and many terrestrial orchids were to be found.

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* Proc. Zool. Soc. Lond. 1895, pp. 358–362.

Some very interesting Spiders are common to this locality. When in Pretoria, my friend Dr. Rendall sent me two specimens of a fine "Mygale" (*Harpactira gigas*),* with the following notes:—(1) "Captured under a large stone, and put in a box with a Frog, which it promptly attacked and bit. The Frog died very soon afterwards. There was no combat so far as the Frog was concerned, only fright. (2) I have obtained another 'Mygale,' and some day or two after it had been killed it fell on the ground, and was promptly pounced upon by a half-grown cat, which ate a portion of the body, and then turned deathly sick, staggered about, lay down on its side panting, and seemed about to die; but, after thus fruitlessly arousing our compassion, recovered after some hours." This was probably caused by the hairs attached to the body of the Spider. Bates, giving his experience on the Amazons of a species, *Mygale avicularia*, writes:—"The hairs with which they are clothed come off when touched, and cause a peculiar and almost maddening irritation. The first specimen that I killed and prepared was handled incautiously, and I suffered terribly for three days afterwards." The total length of this formidable creature of Barberton is forty millimetres.

Another somewhat small but social Spider, *Stegodyphus gregarius*, is not uncommon either at Barberton or Pretoria. Its presence is denoted by its large irregularly shaped nest affixed to the twigs of some thorn bush, where it is liable to create a momentary impression that one is looking at some unknown lepidopteral construction. The size of the nest is clearly variable. The Rev. O. Pickard Cambridge, in describing the species, wrote†:—"A nest of this Spider, containing numerous live individuals of both sexes, some adult, some immature, was sent a short time ago by Col. Bowker from Durban to Lord Walsingham, who, kindly acting on my suggestion, sent the whole to this

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* A new species just described by Mr. Pocock (Ann. and Mag. Nat. Hist. ser. 7, vol. i. p. 316). The same author has in these pages recently described stridulation in these Arachnids (*ante*, p. 14).

† Proc. Zool. Soc. Lond. 1889, p. 44.

Society's Gardens, where, as I understand from Mr. Arthur Thomson, in whose care they are placed, the whole family are in a very active and thriving state. The nest is of considerable size, and filled a box of two feet long by nine inches wide and five deep. Above this nest I hear that the Spiders have now spun lines up to the top of the case in which they have been placed, as though for the ensnaring of flies, &c.; but as their work is entirely nocturnal no observations have yet been practicable in respect to the most interesting part of a Spider's economy. They appear to devour cockroaches and crickets, tearing them to pieces, and each carrying off his share of the prey, like a pack of hounds breaking up a Fox." As observed by Mons. E. Simon in Colombo—for the species is found both on the East Coast of Africa and in India—several hundred individuals spin on a bush an immense nest which has the form of an irregular sack, of which the interior is divided by partitions and traversed by passages.* The nest, which I have here figured, natural size, is seen to be very much smaller than those thus described, while the dead leaves which are incorporated tend to render it inconspicuous at a distance. Some of the Pretoria nests were larger and much more foliaceous, but unfortunately this part of my collection was lost in transit, and the nest figured is the only one I now possess. Fortunately, however, its identity is beyond question, as the Spiders recognized by Mr. Pocock as *Stegodyphus gregarius* were captured after emerging from this very nest. I once placed a similarly-sized nest in a cardboard box about one foot square, and for the time forgot all about it. When I did look again, numbers of Spiders had emerged from it and spun all over the box, the contents of which then appeared like one huge nest. It is probable in such a case that the box prompted the enlargement of the nest, or it may be provided a domicile suitable for the construction of the inner arrangements. Hence such a nest might be considered of an artificial or non-natural size, and may possibly explain the dimensions of the one sent home from Natal, and described by Mr. Cambridge, as previously quoted. I neither affirm nor suggest that such large nests are not constructed in the open; I can only assert that I have never seen such, but have met with quantities of the size figured.

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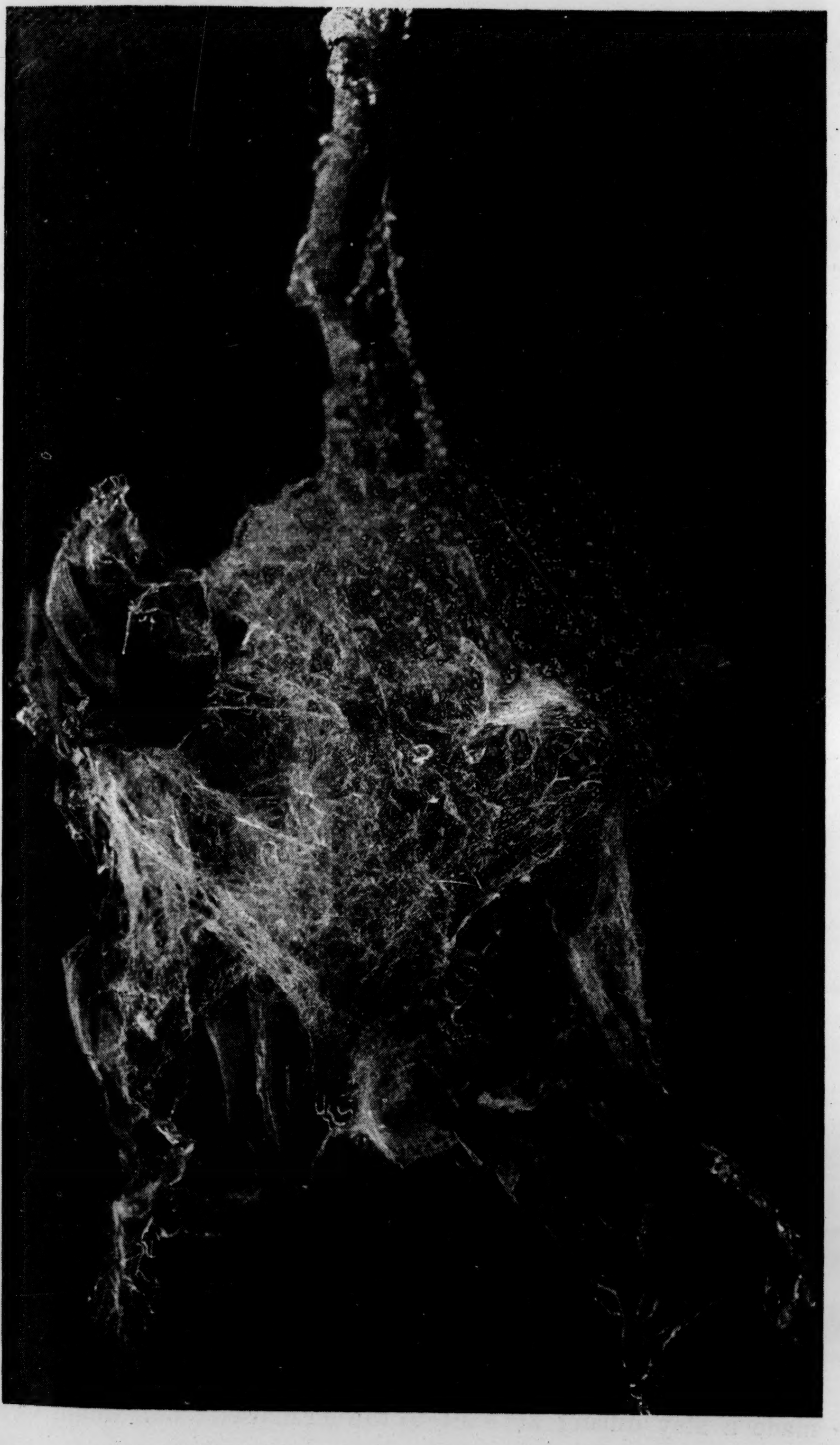
* Hist. Nat. des Araignées, tome i. p. 251.



Nest of Social Spider (*Stegodyphus gregarius*, Camb.).

"Rymer's Creek" is a happy hunting-ground for an entomologist. It is a mountain path running at the back of the town, and which gradually narrows as it is ascended, for richer vegetation waits on its higher altitude. Delightful rivulets of cold spring water afford relief to the tired and too-perspiring naturalist, while for butterflies it proved the richest rendezvous I met in the Transvaal. Here one meets with the Natal Lepidopteral fauna, such species as *Amauris dominicanus*, *Protogoniomorpha anacardii*, *Charaxes varanes*, and *Papilio ophidicephalus* never being procured on the high veld of the Transvaal.

I left Barberton on Jan. 28th, when heavy rain began to set in. It was described as having been the driest summer remembered, and the watercourses were almost empty; but I heard a few days after :—"We have had awful weather since you left us; since the morning of the 28th over twelve inches of rain have fallen. From Thursday, Feb. 6th, at 1.30, to Friday the 7th, same hour, there fell 6·04 in. The country is full; letters cannot go forward. . . . I don't think you would know the creek again if you came back; the road is gone, and is now like the bed of a mountain torrent."

A peculiar coincidence with this dry summer (1894–5) in Pretoria was noted in the 'Transvaal Advertiser':— "This is an age of records, but Pretoria is recording an experience with reference to Horse-sickness which is wholly unprecedented. There may have been one or two isolated cases in town, but Horse-sickness—as known—has utterly failed to put in an appearance this year, whilst 'red-water' amongst cattle is raging throughout the land."

The Neighbourhood of Pienaars River.—This is one of the most easily reached and best collecting-grounds near Pretoria. It used to be a six hours' coach journey, but the Pietersburg Railway is now, I believe, completed to the neighbourhood, so that coaching in this direction is now a thing of the inconvenient past. Driving by road there is not much to strike the traveller beyond the usual open, dreary, but healthy veld, till Hammans Kraal is reached, and then a bush or forest country commences and continues to the Pienaars River. Hammans Kraal deserves a passing notice. It is here that the arachnologist Mons. E. Simon made a stay during his visit to the Transvaal; and when, as is sometimes the case, that locality alone is appended to scientific descriptions, specialists should add "Pretoria District."

With the bush country commences an altogether different avian fauna from the scanty one as seen on the barren veld, where mining and commerce hold their sway. Here nature offers nothing but herself, and though the naturalist will rejoice, the incipient Midas will go empty away; it is a great felicity in our journey through this world to now and then reach an oasis which affords no prospect for commercial enterprise, and where natural conditions may survive—especially in the Transvaal. Driving along this road in the Easter holidays of 1894, I witnessed one of those travelling concourses of birds which have been described by Bates on the Amazons, Stolzmann in Peru, Belt in Nicaragua, and Hudson in Patagonia. Most of the local birds were represented, and were constantly crossing the road between the bush; it was not a rush, but more of a social excursion or food exploration from one part of the bush to another; and when I returned along the same road a few days later very few birds were seen, and these only of one or two of the commonest species. I never met with such a moving and varied assembly of birds again, and they were plentiful on and off for at least ten miles of the road. In February of 1891, along this very road, I once witnessed—but from a coach, when I could do nothing—vast quantities of what was to me always a very scarce butterfly, *Teracolus celimene*, which literally swarmed over damp roadside places. But though I made many subsequent excursions over the same area, at similar and other times of the summer season, and extending over a period of three years, I never met the species again. In this spot and in the month of November a lovely *Crinum*, apparently *C. ammocharoides*, may be found in all the luxuriance of its deep red bloom. Its beauty is somewhat short-lived, and I only saw it in bloom during this month. Lieut. von Höhnel found it blooming in the neighbourhood of Lake Stefanie in April, but that date is near the commencement of the rainy season there, as November is in the Transvaal. The plant evidently comes on very rapidly with the first advent of the rains, after having been incased in the brick-like earth during the dry season. It was a most interesting subject to myself as seen in bloom; for long before I dreamed of visiting the African continent I had vainly tried, under glass and with heat, to cultivate the large and unsightly bulb. I succeeded in producing magnificent leaves, finer than those I subsequently saw under natural conditions, but I could never induce bloom. My failure was probably due to horticultural ignorance, as success is possible; but it emphasises the fact of the mystery of environmental conditions—all so simple and apparent in nature, so intricate under artificial arrangements. Another plant which may be found here, *Sesamopteris pentaphylla*, and which is not uncommon, possesses now a more general biological interest. Dr. Gregory, in his interesting book 'The Great Rift Valley,' has described and figured as a probable case of "mimicry" a number of the homopterous insect *Ityræa nigrocincta*, which in British East Africa clustered on a stem, and thus resembled the inflorescence of this plant. I have not, however, found the insect in the Transvaal, where the plant is anything but scarce; but I have seen many similar instances of other insects drying themselves in like manner and clusters after heavy rain, notably on one occasion by the Centoniid beetle *Diplognatha hebræa*, where certainly no "mimicry" was implied. The entomological circumstance is not unusual, but seldom, I think, so effective for suggesting "mimicry" as seen by Dr. Gregory.

In August, the height of the dry season, I have collected many birds in this neighbourhood. As soon as the bush is reached one is not long noticing the Drongo (*Buchanga assimilis*), a bird I never saw near Pretoria, but which is abundant in the bush and generally seen singly. I found the Drongo nesting in November. Small noisy flocks of long-tailed Shrikes (*Urolestes melanoleucus*) frequent the sides of the forest road. They perch high; and their long tails would probably be an inconvenience if they frequented the short, thick lower bush. Two Barbets are found; the pied (*Pogonorhynchus leucomelas*) is quite common. These birds fly singly in the bush and are easily approached. The beautiful Le Valliant's Barbet (*Trachyphonus caffer*) is much scarcer. Once among the thick twigs of a high tree I could just distinguish two birds either fighting or courting, and on firing I secured a specimen of this handsome species; I seldom saw it. An interesting bird common to this area is the Pied Babbling Thrush (*Crateropus bicolor*). Mr. Buckley, as quoted in Layard's

'Birds of South Africa,' well describes their habits—"going in flocks from tree to tree, following each other almost in single file;" and "if a wounded one gets into a tree it is extremely difficult to retrieve it." This last statement was precisely my own experience; and I had to send my Zulu attendant up a tree to retrieve a wounded bird which obstinately refused to move; but it is a remarkably tame and perhaps inquisitive bird if one remains quiet. Whenever resting in the bush I almost invariably expected after a short time to see this species close to me, either hopping on the ground near by among the bushes or settling in some adjacent tree overhead. Another tame bird is the scarce—for this part of the Transvaal at least—African Buzzard Eagle (*Asturinula monogrammica*). The specimen I secured allowed me to approach quite close; a second example was an equally near acquaintance at Delagoa Bay; while a third was absolutely brought to me at Pretoria which had fallen to a small boy with a catapult. It is, however, anything but a common bird; and Mr. Thomsen, who resides near Pienaars River and has well collected the birds there from time to time, told me my specimen was the first one he had seen. Dr. Bowdler Sharpe, in Layard's 'Birds of South Africa,' writes of this bird: "Only just enters the country treated of in the present work, and never seems to come as low as the Cape Colony or even into Natal, as far as we know at present."

In connection with the habits of these and other allied Accipiters in the Transvaal, I often recalled a remark of the late Frank Buckland, as to being told by "a great observer of nature and a clever sportsman" that "hawks have their regular beat, and frequent daily the same line of country, soaring along for miles and miles in quest of prey," and that "he always marked the time and place when he saw a hawk on the hunt, and sure enough the next day would find my friend at the spot as confidently as if he was expecting a friend by the most punctual of railways." In a general and qualified way I found this true in the places I regularly frequented. If not violently disturbed the same bird may be seen day after day about the same spot and near the same hour, and even a specimen of *Elanus cæruleus* that was driven away at long range for several days continued to appear regularly and punctually till my son obtained a less impossible shot, which, though doing the bird comparatively little harm, caused a cessation of the visit at that particular spot.

Although the visit to Pienaars River which I am describing was at the commencement of August and in the midst of the dry season, the social Whitefronted Weaver Birds (*Plocepasser mahali*) had commenced to build their nests. They are tame birds and gregariously occupied the branches of some trees a very short distance from the store where I stayed. They have also a cheerful note and were continually exercising their short song. The Crimson-breasted Shrike (*Laniarius atrococcineus*) is here very common, flies low in the bush, and is easily secured. At this season Blue-breasted Waxbills (*Uræginthus cyanogaster*) are also seen in small flocks, and add a fitful and brilliant colour to the little cleared spots they frequent in the bright sunlight. The well-known and somewhat discordant cry of the Grey Plantain-eater (*Schizœrhis concolor*) frequently breaks the silence of the bush, but these birds are wary and difficult of approach. They are generally seen three or four together in a high tree, but with crest erect they usually take flight before one can get within range. However, it is not necessary to give a list of all the birds obtained, though reference may be made to the Lark-heeled Cuckoo (*Centropus senegalensis*), which is not uncommon near the Pienaars River. Many times, at a distance, I mistook this bird for an Accipiter, for its habits are somewhat solitary, and it perches and remains sitting stolidly in some tree near a clearing in the bush.

In November, when the rains were frequent, and the summer season fully on, I found many more good birds in this neighbourhood. Two fine Kingfishers, *Halcyon albiventris* and *H. cyanoleuca,* were both obtained some distance from the river and in the bush; the first named I also secured near Pretoria, likewise in bush away from water. The Pied Kingfisher (*Ceryle rudis*), which, on the other hand, is not at all uncommon, I never met with away from the banks of a stream. Three Cuckoos, *Cuculus clamosus, Coccystes jacobinus,* and *C. serratus,* were also far from scarce during this month, and were all secured.

It was in this neighbourhood that, during my last year's stay in the Transvaal, three fine Bateleur Eagles (*Helotarsus ecaudatus*), one male, two females, were trapped—steel trapped—as their legs unfortunately bore witness. I was very anxious to secure these, and eventually did so, though I was compelled to purchase them from the Menagerie of Fillis's Circus—then performing in Pretoria—to which they had become annexed. I brought a male and female of these birds safely home to England with me, with a collection of other living creatures—a collection, however, which had for family reasons to be compulsorily broken up, after a Baboon had escaped from his cage and dismantled the drawing-room. Other living birds which I obtained from this district were the Black Goshawk (*Melierax niger*) and the Black-shouldered Kite (*Elanus cæruleus*).

Many of my visits to Pienaars River were of purely entomological interest. The thick bush and old timber were features unknown to the high veld, and the distance of some sixty miles introduced the collector to an almost new insect fauna. In March, towards the end of the warm season, the butterfly genus *Teracolus* is well represented. In this month I took, and not singly, *T. subfasciatus*, *T. eris*, *T. agoye*, *T. auxo*, *T. evenina*, *T. achine*, and *T. phlegetonia*; all these may therefore be considered as more or less forest or bush-haunting species. Besides butterflies, I also secured many undescribed species of moths, but these must be sought about November in the warm rainy period. In Coleoptera, as the wooded country would suggest, many Longicornia are to be obtained, and I was told by Mr. Thomsen, who collected there, that he procured some species by smartly tapping old trees with a stone near where the well-known borings were observed, when the beetles,—probably *Prionidæ*, and very possibly *Macrotoma palmata*,—would come up sufficiently near to be seized cautiously and carefully by the antennæ. I tried the experiment myself, unsuccessfully, but can implicitly rely on the authenticity of my informant. This device was quite new to me, and is I believe generally unrecorded. But searching for beetles under bark is a course likely to prove introductory to new acquaintances, as near this neighbourhood I once found beneath the bark of an old tree-stump, some three feet above the ground, a pair of the Ophidian *Trimerorhinus tritæniatus*.

It may be mentioned, in conclusion, that in this wild spot my sojourn was made possible by the existence of a good hostelry where the naturalist or sportsman can not only live in comfort, and eat and drink with safety—the last a very questionable matter in some parts of the Transvaal where the Hebrew from Russian Poland too frequently presides—but which is, or was, kept by two cultivated Germans from Frankfurt, one of whom is a good local naturalist, and the other a charming vocalist and good fellow. I found neither "mailed" nor tight fist there.

NOTES AND QUERIES.

MAMMALIA.

CHIROPTERA.

Albinic Example of Long-eared Bat.—I have just found (May 3rd) what I venture to think is a rather unusual case of albinism in the shape of a white Bat (*Plecotus auritus*). When first seen it was nailed up in a barn, having been picked up dead by one of the farm lads. It is pure white, without the slightest suspicion of dark tinge. It was in a rather advanced stage of decomposition, and I omitted to examine the eyes. It has been sent for preservation to Mr. Chalkley, of Winchester.—A. H. Baring (The Grange, Alresford, Hants).

CARNIVORA.

Stoats turning White in Winter.—In answer to Mr. Barrett-Hamilton's enquiry on the above subject, I may say that during the past very mild winter I knew of five such specimens of *Mustela erminea* in this immediate neighbourhood, one of which was almost wholly white, except a little brown patch near each eye, and of course the usual black-tipped tail; in another specimen the top of the head was brown, and a thin brown line extended down the vertebræ from head to tail. My experience is that the head is the last portion of the body to assume the white colour; indeed, I have sometimes thought that the change must begin from the always white under parts, and gradually creep up the sides, as often the sides are quite white, whilst the back retains all the brown tint of the summer coat, the latter seeming to be invaded irregularly by the winter pelage, the line between the two colours being ill-defined and obscure. I have never seen a specimen with a light back and dark sides, though such may occur; but I have frequently noticed that the so-called white parts are often tinged with yellow. How is the change effected? Not by a new coat, for that would necessitate two apparent "moults" in a year, and one of these at a very inconvenient season, but by a gradual change of colour, for it is certain the hair is as firmly fixed in the skin during the change as it is at any other time. If we get a Squirrel with white hairs in its tail or other parts of its body, we find they easily drop out; but of course the two cases are different, and the carnivora and rodent widely separated in their constitution and habits. With regard to the Stoat, the question may be asked why do they not all assume the ermine dress in winter? I have never seen a white Stoat in summer, but I have seen dark Stoats in winter, and it is quite certain that cold is not the cause of change to a lighter garb, as the past exceedingly mild winter has proved. Our scientific friends will tell us it is a case of heredity. In North America it seems that the colour of the Stoat is almost entirely regulated by the presence or absence of snow, and it has been stated that at the first fall of snow the change begins, and within forty-eight hours the alteration of colour is perceptible, so rapidly does it take place. Such, however, is not the case with us, for in this neighbourhood we had no snow until near the end of February; whilst the whitest Stoat I saw during the whole winter was obtained early in January. I have seen a partly white Stoat as early in the autumn as September (Mr. Harting has recorded one in August, Zool. 1887, p. 345), and I have seen them more or less frequent till near the end of April—I have a record of one on April 26th—and occurrences in May are recorded (Zool. 1892, p. 310); but most of them occur, so far as I have observed, in the early part of the year, from January to March.—G. B. Corbin (Ringwood, Hants).

Otters in South-western Hampshire.—That this amphibian (*Lutra vulgaris*) is still to be found in some numbers in this locality the following facts will prove. The river Avon and its tributary brooks have during the past twelve months been unusually productive; I have heard of several being met with in the lower parts of the stream, and I know of one man who caught no fewer than eight specimens in the above-named period in this neighbourhood, seven of which were trapped in less than half a mile of water, and two of those (males) scaled twenty-eight pounds each, whilst the smallest weighed fourteen pounds. In February, when the snow lay on the ground, an Otter was "tracked" from one of the forest brooks to a large furze-bush at some considerable distance away, and there worried to death by two large dogs. Several of these forest brooks flow into the Avon, and it is possible that during the daytime Otters that fished the river during the night have retired to the quieter and less frequented brooks for their repose, as they are very seldom seen or their retreats discovered by fishermen and others who frequent the river banks. This no doubt arises in a very marked degree from the nocturnal habits of the creature; but that they sometimes travel long distances is well known, as their nightly depredations are visible where there is no apparent "cover" or hiding place. I once knew of an instance where a female Otter had her lair under some planks of a boat-house close to the weirs, which were the "hunting-grounds" (if such an expression can be rightly applied to an aquatic situation) of herself and mate; but it is not always the case that they take up their quarters so closely to the scene of their labours. Some of the forest brooks to which I allude are often productive of numbers of small Trout, so that Otters may find food even there; and we well know they do not confine themselves to a fish diet. Young Moorhens and Coot are often taken, as well as young Wild Duck. I am informed that in April, the Otter-hounds—from Devonshire, I believe—which usually make an annual visit to this neighbourhood, killed one Otter and lost another in the small stream that separates the counties of Hants and Dorset; and only a few days ago (May 16th) I saw one that had been killed near the same place; it was a male, and weighed sixteen pounds. Some time ago a gamekeeper told me he had several times, in the early morning, seen what he thought was an old Otter and young ones disporting themselves in a particular part of the river, and in the dim twilight had once had an unsuccessful shot at them. One morning some time afterwards, however, about 9 a.m., he saw two Otters, about the size of terriers, playing like puppies in the sunshine, on the river bank. One of these he shot (which I saw), but he said he had no sooner shot than (what he supposed was) the old female and another young one made their appearance out in the stream, the larger of the two raising itself in the water, at the same time uttering a loud and shrill whistle, repeated again and again, as if anxiously calling the slaughtered cub. As far as I can learn, none of the Otters of which I have spoken were preserved, except as skins for the sake of the fur, which is much sought after for dress trimmings, &c. The man who caught the eight Otters before mentioned has been a river keeper all his life, and during the time has shot and trapped some scores of them; but he tells me that only in one solitary instance has he trapped an Otter by the *hind* leg, and he is under the impression that on occasions when his traps have been "thrown" and unoccupied, the Otter has managed to withdraw its hind foot from the jaws of the trap; and this supposition seems very feasible, if we note the difference in the form of the hind and fore feet, for the latter are comparatively (I use the word advisedly) soft and fan-like, whilst the former are tapering and rigid; and any person who has inspected an Otter must have been struck with the wonderful strength that must be developed in the short thick limbs, neck, and jaws of the cylindrical body, which, together with the glossy close-set hair and under fur, adapts it so admirably to its mode of life, and the element in which it delights to live.—G. B. Corbin (Ringwood, Hants).

CARNIVORA AND RODENTIA.

The Scientific Names of the Badger and the Common Vole.—In the list of British Mammals (*ante*, p. 97), by a slip the Badger was accidentally omitted, although a passing reference to it as one of the animals for which *Scomber-scomber* names were necessary was made on p. 99. As is there indicated, its technical name should be *Meles meles*, based on Linnæus's "*Ursus meles*," instead of the current but incorrect *Meles taxus*, a name (in the form *Ursus taxus*) originally based on the American Badger. Since my list was published Dr. Collett has brought out a most interesting contribution to our knowledge of Norwegian Mammals (Nyt Mag. Naturvid. xxxvi. p. 264, 1898), and in this he has adopted, quite independently, all the nomenclatural principles advocated in my list. He thus lends the weight of his authority to *Scomber-scomber* names, such as *Meles meles*, *Lemmus lemmus*, &c., and uses *Lepus timidus* for the variable Hare, and "*Putorius nivalis*" for the Weasel. My unfortunate discovery of "*Neomys*" as being earlier than "*Crossopus*" was not known to him, but from his consistent obedience to nomenclature rules he would evidently have used it had he known of it. In one instance, however, he has adopted a change from the current term which, probably as much to his pleasure as my own, I am able to show is not necessary. This is the name of the Common Vole, *Microtus agrestis* of my list, whose specific name has been used from time immemorial. This animal does not occur in the tenth edition of the 'Systema Naturæ' (1758), but does, under the name of "*Mus gregarius*," in the twelfth (1766). On this basis Dr. Collett has called it "*Microtus gregarius*," but he has overlooked the important fact that, although the first edition of the 'Fauna Suecica' (1746), in which the name "*Mus agrestis*" occurs, is pre-Linnean, and therefore invalid; the second edition (1761) is after the standard date 1758, and may therefore be accepted as a valid post-Linnean work. *Mus agrestis* occurs on p. 11 of this edition, and will afford a sound basis for the use of the familiar term *Microtus agrestis* for the Common Vole.—OLDFIELD THOMAS.

The Insectivora and Rodentia of Northumberland.—As the occurrence in the North of England of some of the under-mentioned species of Mammalia does not seem, so far as I can trace, to have been hitherto recorded in 'The Zoologist,' I think the results of a fortnight's trapping in Northumberland, in January, 1895, may be interesting:—1. Mole (*Talpa europæa*). 2. Common Shrew (*Sorex vulgaris*). 3. Pigmy Shrew (*S. pygmæus*). 4. Water Shrew (*Crossopus fodiens*). 5. Squirrel (*Sciurus vulgaris*). 6. House Mouse (*Mus musculus*). 7. Wood Mouse (*M. sylvaticus*). 8. Water Vole (*Arvicola amphibius*). 9. Field Vole (*A. agrestis*). 10. Bank Vole (*A. glareolus*). Nos. 2, 3, 7, and 10 were caught in the same hedge-bank, and seemingly using the same runs. I have in my possession the skins of all the above except those of No. 5, which, I may add, were shot, not trapped.—JOHN H. TEESDALE (St. Margarets, West Dulwich, S.E.).

AVES.

Immigration of the Song Thrush.—A remarkable recent immigration of the Song Thrush (*Turdus musicus*) seems worth recording. How far it may have extended I cannot say. I have noted the circumstance since to various friends in the neighbourhood, but none of them being "observers" of "natural history" facts, I have been unable to obtain any information as to whence the Thrushes came or whither they went. The normal number of Thrushes in my shrubberies and adjoining fields at the time of this immigration I should compute (from many years' observation of nests, &c.) at about five or six pairs, or may be one or two more. These I had seen constantly through the past winter and early spring. On March 19th, however, the number of birds on the lawn and adjoining field (of four acres) appeared to be unusual. The next day there were more still. On the following day, and up to the 26th, they continued to increase. On the 25th I counted up to fifty hopping about in the part of the field nearest to me, but the whole field was fairly covered with them. Of course it was impossible to count all of them accurately, but I feel quite within bounds when I say there must have been at least two hundred, and on the 26th even more. On the 27th the numbers were much fewer, and by the evening of the 28th the whole of them had disappeared. Since that only the normal few pairs have been seen. I have the following note of a somewhat similar but less numerous immigration on Feb. 3rd, 1892:—"A large number of Thrushes in the front field just before sunset. Probably an immigration. The normal number during all the past winter very small." This immigration was followed by a similar disappearance in the course of a few days. Scarcely a year passes but that we have a sudden appearance, in the month of August, of many Thrushes, which disappear again more or less quickly, often remaining no more than a single day; but, excepting on the two occasions noted, I have not noticed such an immigration in the spring. I believe the August movement of Thrushes has been noted before, but I fancy this spring movement has not been noted, even if observed. During the time the birds were here they were occupied in hopping aimlessly about and feeding. There was no indication of their having paired, though at the same moment there were nests building, and in one case eggs laid, of the same species in the adjoining shrubberies.—O. Pickard-Cambridge (Bloxworth Rectory, Wareham).

Melodious Warblers in South-east Devon.—Wishing to ascertain if the Warblers (*Hypolais*) which I heard singing in May last year in the wooded undercliff at Ware, about a mile to the west of Lyme Regis, the Devonshire side of the town, had returned this season, I visited the spot on the very same day (May 4th) that I had identified the song last year, but it was cold and cheerless, and not even a Thrush was singing. On the afternoon of the 6th the weather was more favourable, and three of the Warblers were singing within a yard or two of the whitethorn bush from which the first had been heard on May 4th, 1897. By walking quietly forwards a clear view was obtained of two of the birds perched on a small bush that was still bare of foliage, and as far as it was possible to be certain without having them actually in hand, *Hypolais polyglotta*, the Melodious Warbler, was satisfactorily identified. The morning of May 9th another visit was paid to the wooded undercliff. It was warm and summer-like after a night of rain, just the time for Warblers to be in full song; and as the result of a two hours' ramble at least a dozen of these little Warblers were recognized. In one beautiful glen, carpeted with bluebells and ground-ivy, five Melodious Warblers and a Nightingale were singing close round me, and as I stood listening to them another Melodious Warbler flew into a bush at my elbow, and commenced its song. The presence of so many of the birds makes it conclusive that those heard last year successfully nested; *Hypolais polyglotta* may now be regarded to have established itself as a summer migrant to this extreme south-east corner of Devon. It was impossible to avoid reflecting that, as so many of these Warblers had been detected in a comparatively small portion of the wooded undercliff, there were probably many others in the long stretch of similar cover between Ware and Axmouth; and that possibly the shrubberies of the old-fashioned country houses that skirt the little town of Lyme were tenanted by others. Last year the loud clear notes of the two Warblers then heard induced the belief that they were the Icterine Warbler (*Hypolais icterina*); no close view of them was obtained; one seen flying across a little glade was too distant for its plumage to be ascertained. The thickness of the cover—it is a jungle of big whitethorns, brambles, &c.—will afford the birds protection; there is little fear that they will suffer from the raids of egg-collectors.—MURRAY A. MATHEW (Vicarage, Buckland Dinham, Frome).

Meadow Pipits perching on Trees.—I can quite confirm Mr. Coburn's note as to the arboreal habits of the Meadow Pipit (*Anthus pratensis*). The bird is exceedingly common in this district in summer, and also passes through in great numbers at the periods of migration. In my experience the Meadow Pipit, when flushed, usually perches on a tree or bush if one is at hand. I have frequently seen migratory flocks of thirty or forty birds perching together on the tops of alder trees on a neighbouring marsh.—G. H. CATON HAIGH (Penrhyndeudraeth, Merionethshire, North Wales).

"Horse-match," a Name for the Red-backed Shrike (Lanius collurio).—I notice (*ante*, p. 188) Mr. O. V. Aplin has written a very interesting note on this curious local name. It will no doubt interest him to know that in the course of my preparation for my shortly forthcoming book on the 'Birds of Surrey' I have come across this term applied to the same species in a series of hitherto unpublished notes by the late Mr. H. Long, formerly of Hampton Lodge, near Puttenham, Godalming, to which, through the kindness of a relative, I have had access. Mr. Long was a well-known naturalist in the very early part of the century, and collected at his country seat a considerable number of rare Surrey birds. He also rendered assistance to the late Mr. Yarrell in the compilation of his well-known work, particularly with reference to the breeding of the Crossbill in the Holt Forest. Mr. Long says :—"The inhabitants of the Devil's Punch Bowl (Highcombe Bottom) and Whitmore Bottom know this bird (*L. collurio*, J. A. B.) by the strange name of 'Horse-match.'" Unfortunately he gives no further particulars of any sort, nor does he hazard any guess (as he does in several other cases) as to the origin of the name. It is nevertheless worthy of remark, as Mr. Swainson ('Folk-lore of British Birds,' p. 9) only applies it to the "Wheatear." The derivation of "horse" equalling "coarse" of Mr. Aplin is probably correct. The most ingenious suggestion, but at the same time a most improbable one, is that of "haws," *smash*, from the habit which the bird has of impaling its victim on thorn bushes. The etymological derivation will, I am afraid, put an end to this idea. Mr. Long's note was written about 1825. At the present time this name is not, so far as I am aware, in use anywhere in Surrey. May I take a last opportunity of asking any of the readers of 'The Zoologist' to send me any occurrences of rare birds which may have come under their notice in Surrey, so that my little book may be brought up to as recent a date as is possible before publication?—JOHN A. BUCKNILL (Hylands House, Epsom).

Woodchat Shrike in Sussex.—I beg to record the occurrence of a male Woodchat Shrike (*Lanius pomeranus*) on the salts near St. Leonards-on-Sea, Sussex, on May 1st. It had been seen on the day previous, and in the same place, close to a brick-field. I believe this is the third time it has been recorded for Sussex. Mr. Borrer mentions one in his 'Birds of Sussex,' and another was recorded by Mr. Parkin in 'The Zoologist' (1892, p. 229), shot at Fairlight Hill, about four miles from the spot where the present one was got. It has been identified by Mr. Bristow, taxidermist, of St. Leonards.—G. W. BRADSHAW (54, London Street, Reading).

On the Date of the Arrival of the House Martin.—In almost all the books on ornithology which I have examined, the House Martin (*Chelidon urbica*) is said to arrive a few days later than the Swallow, *i. e.* about the middle or latter part of April. Stevenson, in the 'Birds of Norfolk,' writes even of the second week in April, though he adds that the 20th may be considered an average date (vol. i. 329). There is indeed a certain amount of irregularity in the arrival as in the departure of this bird, and on the south or west coast it will occasionally appear very early indeed—*e. g.* my friend Mr. H. C. Playne noted its arrival near Bristol on April 6th, 1894—and I find one or two very early dates in the records of the Natural History Society of Marlborough College. Gilbert White, in his Fifty-first Letter, makes it clear that he expected Martins to arrive in Hampshire by April 11th. During the last few years it has gradually grown upon me that the Martins do not appear so soon as I should have expected, and I have in consequence brought together my records for the last ten years (unluckily not quite complete) to determine what truth there may be in this. I may say that I arrive at Oxford for the term about the middle of April, and that on arriving I invariably search the favourite places which the Swallows and Martins affect as soon as they reach us. I am not therefore likely to miss them if they are here. Mr. O. V. Aplin has kindly sent me a list of records which go back beyond my own, which he allows me to publish. All his but one are from the neighbourhood of Banbury, and the one exception (1896) is from Nettlebed, in the Chilterns. He was abroad in 1893 and 1895, and for the former year I unfortunately have no record, nor have I been able to obtain one from any ornithological friend. The following table will show our respective observations:—

O. V. A.	W. W. F.
1881, May 1st	—
1882, April 19th	—
1883, April 28th	—
1884, May 3rd	—
1885, April 17th	—
1886, April 23rd	—
1887, April 29th	—
1888, April 28th	April 20th (several).
1889, May 2nd	—
1890, May 3rd	April 21st (one).
1891, April 24th	April 26th.
1892, April 24th	April 26th.
1893, —	—
1894, May 7th	May 1st.
1895, —	(April 13th, at Bordighera).
1896, April 26th	May 9th.
1897, April 25th	April 30th.
1898, April 30th	April 29th.

The results of this table, so far as they go, may perhaps be stated as follows:—1. The irregularity of the movements of this species comes out distinctly, for we have a range of *first appearances* extending from April 17th to May 9th. In Mr. Murray A. Mathew's 'Birds of Devon' I find a still longer range recorded, for in 1874 he noted the appearance of two Martins on April 2nd, while in 1891 none were seen till May 14th. This is possibly due to a double wave of migration from Africa, for Col. Irby, in his 'Ornithology of the Straits of Gibraltar,' tells us that Martins cross the Straits both in February and April; and it may be that only a few of the earlier travellers reach this country, arriving in the first half of April, while the mass belonging to the second wave do not arrive till the end of April or beginning of May. 2. On the whole the dates of arrival are later than I myself, and I think others, had fancied they used to be. In connection with this I would draw attention to the date in my table of 1895, when I was in the South of France and the Riviera. Until April 13th I did not see a single Martin, not even at Aigues Mortes, near the Delta of the Rhone, where the Swallows were arriving in great numbers. Such Martins as arrive in England by this route could not that year have reached their destination till quite the end of the month. This record therefore seems to tally closely with the majority of those made in England. I will not venture to conclude too hastily that the arrival of this bird has of recent years been getting later, but there is some slight indication in the tables that this may be the case. If it were so the fact might be accounted for, as Mr. Aplin has suggested to me, by the very obvious diminution in the numbers of the species in this country; the first arrivals, being few and far between, would be more liable to be overlooked than in former years.—W. Warde Fowler (Lincoln College, Oxford).

The Song of the Chaffinch.—Although I am not sure that I quite agree with Mr. Witchell's views respecting the song of the Chaffinch, I am glad that he has drawn attention to it in his interesting paper in 'The Zoologist' (*ante*, p. 195). To me the song seems a remarkable one for two reasons:—1st. The difficulty with which in most cases it seems to be put together in every year, some birds requiring weeks to do this, others succeeding in a few days. 2nd. The great difference in the song of different individuals, some having a really fine and impressive song, whilst others have only a very poor and monotonous ditty. Nowhere have I heard such fine performers as in Earl Fitzwilliam's woods at Shillelagh, far famed for its splendid oak trees. At Ardmayle, near Cashel, I heard Chaffinches with call-notes differing from any I have heard elsewhere, and this year, at Killaloe, I felt certain for some time that I was listening to a Bullfinch rather than to our old friend *Fringilla cœlebs*. The Chaffinch's song has been written down in various ways. Some London dealers think the best strain is like "ring ring rattle chuck wido." The German version, however, seems to me to be the best: "Pritz pritz pritz, will'st du dem mit dem Bräutigam zieren," some substituting "pink" for the initial "pritz." Perhaps some of your readers would kindly say whether they have ever heard a Chaffinch conclude its song with what fanciers call the "amen"; I mean the familiar "pink" or "fink" at the close. I have heard but one "amen" Chaffinch in my life, but I should like to hear another.—Charles W. Benson (Rathmines School, Dublin).

Notes on the Chaffinch.—Referring to Mr. Witchell's interesting notes on *Fringilla cœlebs* (*ante*, p. 195), I may state that in my garden aviary—during the love fever especially—my Chaffinches frequently indulge in the full gurgling rattle he speaks of (and so also does the Bramble-finch*), but I do not think we can reasonably draw the conclusion that coition occurs in the air. As the result of observation of birds in the fields and captives in my aviary, the only conclusion to be placed on the swooping flights and close contact of the birds he so fully describes, is that of their violent courtship. During this time, in my garden aviary, they are continually chasing one another (that is, male and female) from one end to the other, swooping and circling, and sometimes falling to the ground together; but I have never observed coition to take place, save on the ground and in the branches, when the male bird gives forth the full gurgling rattle aforementioned, as I noticed only two days ago. I quite thought the theory of Chaffinches copulating in the air was exploded long ago, and as the result of my own observations do not consider there is any evidence to support it. Dr. Butler also states this very clearly in the work now publishing, 'British Birds, with their Eggs and Nests.'—W. T. PAGE (6, Rylett Crescent, Shepherd's Bush).

Rooks feeding on Elvers.—On the 27th of April last, when fishing on the Laune, in Co. Kerry, I observed Rooks flying to the edge of the water, where they pecked at something, and then, proceeding to the bank some two or three yards away, repeated the action, flying away afterwards to a rookery near by. I knew the Elvers or Eel-fry were running, and suspected the Rooks were carrying them off to their young. To ascertain whether this was the case, I crept behind a gorse-bush, and when a Rook flew from the edge of the water and settled near me, I jumped up suddenly, and, frightening it off, I then examined the place it had hurriedly left, and found an Elver wriggling on the grass. This is probably certain proof that they were doing what I suspected.—WM. T. CRAWSHAY (33, Belgrave Square, S.W.).

Cuckoo Questions.—Following up my remarks on this bird (*Cuculus canorus*), (Zool. 1897, p. 365), I observed as the young Cuckoo grew that the foster-parents fed it most assiduously; but there is one point on which emphasis may be placed, and that is the nature of the food supplied to the foster-bird. Various species of birds which are called upon to rear Cuckoos enjoy a wide range of food and habits; it therefore falls to Cuckoos to be fed by the different food used by their foster-parents. This in turn raises the question how far each Cuckoo is influenced by the peculiarities of the birds which rear it? I described the pugnacious habits of the one found in the nest of the Twite, in common with its kind when approached by man, and my last visit to the nest found the young Cuckoo able to fly when I picked it up and replaced it in the nest. The following morning the nest was empty, and two days later a bird which might be reasonably supposed to be the same Cuckoo was found perched on a willow about one-fourth of a mile from the nest, and alongside a Wood Pigeon which was nesting on the same tree. The Cuckoo, on being taken into the finder's hands and released, went back to its place by the Pigeon's nest. Did the Pigeon assist it in any way with its food? It certainly did not find fault with the Cuckoo as a neighbour, and it is clear that the Cuckoo at least valued the companionship, whatever benefit that might have conferred. Another question now arises, would the foster-parents follow up and support the bird as they do their own young when they leave the nest? or do the parent Cuckoos or any of them take any immediate charge of the young at this stage? Again, how do they commence to gather food for themselves? As they are supposed to require nearly all their time in the adult state to pick up the necessary food for their support in our climate, it seems to me that there must be some provision in nature more or less peculiar to the species for providing for their support from the time they leave the nest until they are capable of adequately attending to themselves. In the case noticed there were no signs of the presence of the foster-parents when the young Cuckoo was found in company with the Pigeon. The Mountain Linnet is rather demonstrative when anything calculated to disturb its young occurs, and its absence in this case would favour the idea of the duties having been concluded, although they keep close to their own young for some time after they are able to fly about. Then how do young Cuckoos proceed in leaving us? The last incidents to which I have referred occurred about the middle of July, after Cuckoos were mute; but I noticed at least one adult after that date. I have never heard in what way they leave us, whether solitary or in company. The young and adults have both to migrate from us, while there are only adults to come to us in spring. Would those which are hatched in any place return to it or its neighbourhood the following year? or would the birds in general have a tendency to retain through life their first haunts, or would they be indifferent to this? Of course they follow certain physical aspects of the country, as, for example, they frequent young plantations, these yielding abundance of food.—W. Wilson (Alford, Aberdeen).

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* Last year the Bramble-finch was paired with a hen Canary—of his own choosing, for they were mixed up with others, Chaffs, &c.—and after coition indulged in the full gurgling rattle similar to the Chaff, but a little stronger. I may say, however, all the eggs were infertile.—W. T. P.

Kites in Wales.—A few days after reading Mr. J. H. Salter's paper in 'The Zoologist' (*ante*, p. 198) entitled "Ornithological Notes from Mid-Wales," I chanced to open a volume of 'Blackwood' for 1839. From an article headed "An Excursion over the Mountains to Aberystwith," I make the following extract:—"Two very large Kites flew into the area between the cliffs, from over the top to the right, and magnificently and gracefully sported; it was what a dance on wings may be imagined to be by free creatures in their utmost joy. After a while another swept over the opposite cliff, and came sailing in his glory among them; and they joined, varied their figure, and performed a wonderful ballet. Sometimes they seemed burlesquing what we have seen in a theatre, retreating and coming in again, and with a new vagary. We afterwards learnt that these creatures are remarkably fine, and peculiar to the place." It would be interesting to know whether the statement as to the birds in question having a distinct peculiarity is founded upon facts. If it be, and their descendants are of a similar type, it makes the miserable persecution to which they are subjected and their imminent extinction all the more deplorable. Some twenty-five years ago or more I saw, in an aviary in a garden near Beddgelert, a Buzzard that had been taken from the rocks above Pont Aberglaslyn. I was greatly struck by the size of the bird, so much larger, at least so it seemed to me, than any mounted or living specimens I had ever seen.—T. Vaughan Roberts (Nutfield, Watford).

Disappearance of the Lapwing in North Lincolnshire.—This bird (*Vanellus vulgaris*) has practically disappeared as a resident species; each year they have got scarcer, and at the present time I do not think there is a single pair nesting in the parish or neighbourhood. Not many years since a pair or two might be found in almost every field, and a considerable number of young were hatched and got away. One of the most familiar sounds on warm spring nights used to be the calling of the Peewits in the low grounds and marshes. Now all is changed, and we only know it in varying numbers as a spring and autumn migrant. I attribute its disappearance to several causes,—the netting of the old resident stock in the winter, the persistent plundering of the nests by egg-gatherers, also the destruction of the eggs by Carrion Crows and Rooks, but especially the latter. Another reason probably is the conversion of much of the arable land into permanent pasture. I should like to know if the Lapwing has become scarce in other localities in the country where once common.—John Cordeaux (Great Cotes House, R.S.O. Lincoln).

Birds which nest in London.—I hoped that Mr. Meade King's communication (*ante*, p. 189) would have elicited some information as to the alleged recent nesting of the Sedge Warbler (*Acrocephalus phragmitis*) by the Serpentine. For a good many years past I have walked down the whole length of the Serpentine early in the morning on six days out of every seven, during eleven months in each year, solely for the purpose of observing birds; in spring and summer I often do so twice a day. Moreover, many of my friends observe birds regularly in Kensington Gardens and Hyde Park, and report to me the results of their observations. So if the Sedge Warbler has recently nested by the Serpentine, it is remarkable that I should have neither seen nor heard anything of it, especially as it is an extremely noisy and self-assertive species. According to my experience it is a very uncommon visitor to the Serpentine; I have only come across it in three years out of the last ten. On the other hand, the Reed Warbler is a fairly regular spring visitor. The House Martin (*Chelidon urbica*) nested annually on the houses in Kensington Gardens Terrace till 1887. As to the Rooks in Gray's Inn, having carefully watched their nesting operations, I am doubtful whether there are more than half a dozen occupied nests at the present time. It is to be hoped that Mr. W. de Winton is right in estimating the number at ten or twelve. There are two inhabited nests of the Carrion Crow in Kensington Gardens this year. Mr. Meade King rightly takes exception to the inclusion of the Wild Duck in the list of species breeding in London. I do not know of any place within four miles of Charing Cross where the Wild Duck nests, or is at all likely to nest. The birds on the Serpentine are perhaps the wildest of all the London park Ducks, but they must all be considered semi-domesticated. Even after the annual slaughter of parti-coloured specimens, I doubt whether of the birds left, more than half are coloured like wild birds. If *Anas boscas* is to be included in the list of wild species nesting in London, it is time to consider the claims of *Columba livia.*— A. HOLTE MACPHERSON (51, Gloucester Terrace, Hyde Park, W.).

Your correspondent, Mr. C. Meade King, is not quite accurate in stating (*ante*, p. 190) that the rookery in Gray's Inn is the "last London rookery." In the grounds of "Rookwood," High Street, Hampstead, about three pairs nest annually. This is some hundred yards within the four-mile radius.— H. RATCLIFF KIDNER (West Hampstead).

Birds in London.— The Sky Lark (*Alauda arvensis*) is to be heard at Shepherd's Bush, London. At first when I heard it from my garden I thought it was a caged bird singing somewhere near, yet thought the song too full and joyous for a captive; and several mornings since, when foraging for my aviary pets on some open ground near, it rose within a short distance, and commenced singing joyously but a few feet above my head. I feel sure its nest is close at hand (though I failed to find it in the short time at my disposal), as I have since heard and seen it almost daily in and about the same place for the past six weeks. — W. T. PAGE (6, Rylett Crescent, Shepherd's Bush).

[Mr. W. H. Hudson, in his 'Birds in London,' relates that "during the last two exceptionally mild winters a few Sky Larks have lived contentedly in the comparatively small green area at Lambeth Palace."—ED.]

Ornithological Notes from Sark.—In the early spring of the present year I spent a week (March 22nd–30th) on Sark with some college friends, and possibly some notes on the birds to be found on the island at that time of the year may be of interest to readers of 'The Zoologist.' We observed in all some forty species, and very probably overlooked others, as during the first half of our stay a strong gale was blowing from the north, with frequent showers of rain and snow, which made it both difficult and unpleasant to hunt for birds. We saw four species of Gulls—the Herring Gull, Greater and Lesser Black-backed Gulls, and the Kittiwake, of which the first mentioned was by far the commonest. The Kittiwake nests on the "Autelets," a group of rocks, very difficult to climb, on the west of the island. Four or five pairs were there at the end of our visit, and I do not think many more nest on the island, as the fishermen say they are not at all common. The Razorbills and Guillemots arrived on March 29th, and took possession of the ledges on the "Autelets," where they nest later on in the year. I counted from fifty to sixty of each species. The Shags were very numerous, and were busy with their nests, in some of which, I think, eggs had already been laid. They appear to nest principally on the "Autelets," the Moie de Mouton, and on the rocks around Pot Bay. I only saw one Cormorant, and, as the fishermen do not seem to know the bird, they are probably uncommon. We saw a great number of Oystercatchers all round the island; they were chiefly in pairs, but occasionally we saw five or six, or even more together. The Chough is not common on the island, but I believe it breeds there regularly. One fisherman told me he had not seen more than one pair for some time, but another thought there were in all about six pairs. I myself saw one pair in Dixcart Bay, where I was told they nest, and on another occasion five together on the western side of the island. We saw one pair of Ravens, and found their nest in the side of a cliff on the Moie de Mouton; it contained two or three young birds well fledged. The Kestrel was not at all uncommon, and the Sparrowhawk is also said to inhabit the island, but we did not notice it during our visit. Rock Pipits were fairly numerous, and one or two pairs of Stonechats might be seen wherever there was any gorse growing. I noticed one or two Cirl Buntings, and also a pair of Firecrests, which were very tame. The Wheatear appeared on March 28th, and the Chiffchaff on the 30th. We also observed the following birds:—Mistle Thrush, Song Thrush, Blackbird, Redbreast, Goldcrest, Hedgesparrow, Great Tit, Blue Tit, Wren, Meadow Pipit, Greenfinch, House Sparrow, Chaffinch, Linnet, Yellow Bunting, Starling, Magpie (common), Jackdaw, Carrion Crow, Sky Lark, and Lapwing (flock of seventeen). The fishermen say that the Gannet visits Sark in the summer, and that the Puffin nests on L'Etac, an island off Little Sark, but we saw neither of these birds during our stay on the island. A gentleman who knows the island well told me that the Black Rat is the common Rat on Sark; and certainly the only specimen we saw on the island was black, and appeared to be an example of *Mus rattus*. —F. L. Blathwayt (Weston-super-Mare).

Ornithological Notes from Corsica. Correction.—During last April I spent a week in Corsica, and with the help of a small weapon discovered that I made two bad mistakes in the notes published in 'The Zoologist' (1897, p. 254). I hasten to correct them, and apologise to readers of this Magazine for my carelessness. The delightful little Finches which are so numerous on the mountain slopes are Citril Finches (*Chrysomitris citrinella*), and not Serins. The species of Lark which is common in the island, and which is the only one I could find this year, is the Wood Lark (*Alauda arborea*), and not the Crested Lark. The mistake I made in saying that Crested Larks were common was due to some confusion I was in with regard to the songs of these two species. I am able to add two species to my former list. Ring Doves (*Columba palumbus*) were plentiful in some of the pine forests, and a Spotted Flycatcher (*Muscicapa grisola*) was at Ghisonaccia on April 17th. Crag Martins (*Cotile rupestris*) were very numerous in the gorge between Ghisoni and Ghisonaccia, and were building their nests.—Herbert C. Playne (Clifton College).

Appearance of Migrants in Aberdeenshire, 1898.—With this mild winter a Lapwing was observed on the 14th January, and heard also on the 15th, some being continually about after that date. Curlew, March 9th, and a little later the largest flock which I have yet seen. On same date I also heard some migratory Warblers singing, being earlier than on any previous year; they are seemingly on the increase here. Water Wagtail seen March 24th, Ring-Ouzel end of March (this bird comes decidedly earlier now than it did some years ago). The Lark and Mavis were both singing on March 9th. Cuckoo heard May 1st. Dunlin Sandpiper was seen May 7th. I saw a Wheatear or White-rumped Stonechat on May 10th at old ruins, Coreen Hills, surrounded by heather, this being the most moorland place at which I have ever seen this bird. I have not yet noticed either the Grey or Yellow Wagtail, which generally appear here before this date.—Wm. Wilson (Alford, Aberdeen).

INSECTA.

Cicada attacked by Mantis.—In 'The Zoologist' for 1897, p. 160, I mentioned some of the many enemies which prey upon Cicadas. I have recently received from Mr. Alec Ross, of Johannesburg, two specimens, the attacker and victim, which I respectively identify as *Miomantis fenestrata*, Fabr., and *Tibicen carinatus*, Thunb. Mr. Ross informs me:—

"The Mantis was sitting on a grass-stem, holding the Cicada on its back, and biting it on the hind wing, which you will see is damaged in consequence. My attention was attracted to it by the unusually loud noise the Cicada was making." This narrative is also interesting as showing that the stridulation of the Cicada is also used as a sign of alarm or pain, and is not of a purely sexual or æsthetic character.—Ed.

Southerly Extension of the East African Butterfly Fauna.—Durban, the well-known port of Natal, is the home of several good lepidopterists, the name of Col. Bowker being a host in itself; consequently the butterflies of that neighbourhood have been well and persistently collected, and there is little chance of prominent species being overlooked. Of late years several species hitherto considered as part of the Mozambique fauna have appeared at Durban, such as *Godartia wakefieldii*, which I took myself when at that spot in 1896. Last year Dr. Dimock Brown, who was in England, called and showed me a specimen of *Crenis rosa*, originally described from Delagoa Bay, which he had captured in the Durban Botanical Gardens; and now Mr. A. T. Millar informs me that this year at least a dozen specimens of that species have been captured about Durban, and in such splendid condition as to prove they had but recently emerged in the imago condition; so that *C. rosa* may now definitely be included in the Natal lists. The route followed is evidently the coast forest belt, which extends from Delagoa Bay to and beyond Natal, and further visitors may be expected.—Ed.

NOTICES OF NEW BOOKS.

Essays on Museums and other Subjects connected with Natural History. By Sir WILLIAM HENRY FLOWER, K.C.B. Macmillan & Co., Limited.

SIR WILLIAM FLOWER in this volume has collected and published most of the principal essays and addresses which he has from time to time written or delivered on Zoological—including Anthropological—subjects, and which from their non-technical character appeal not only to naturalists but also to the usual cultured reader. There is always a danger that the special element of a man's great success may prove a cloud which serves to obscure his other qualities. We are so apt to think and read of the author as the greatest of contemporary Museum Directors, that we are liable to overlook the fact that his influence on Zoology has been exercised over a wider field, and that his services to Anthropology in England have been of a signal character.

The first seven chapters or essays are altogether devoted to "Museums," a subject which to the general public would probably be thought threadbare, by the rank and file of ordinary curators has been canonised and fossilised, and which is now in its renaissance both in Europe and America, with potentialities for instruction which democracies have hardly yet suspected, and which in time they will very heartily support. The Museum of the future must serve two purposes; not only must it prove the temple for scientific study and research, by vast accumulation of specimens, and not by a limitation to examples as in a Noachian collection; but it must be made to attract and instruct our general humanity in the secrets and charms of the animal life to which it belongs, of that which has preceded its era, and of that which has vanished and is still vanishing from its contact. The time is past when the wretched holiday seeker, uninstructed in zoology, unassisted by state-paid instructors or guides, wanders his weary way past miles of glass cases crammed with stuffed skins, and eventually emerges tired and unenlightened to ardently seek refreshment of another nature. We unhesitatingly say that this official obscurantism is no longer possible, and that it is owing to chiefs like Sir William Flower that it is dying now and will be incapable of resuscitation in the future. A zoological museum is capable of a vast æsthetic leavening of the masses; a love of nature is universal and precedes art. The degradation of museums to the present zoological ignorance of the masses is not desired, but a levelling up of the latter is the thing needful, when natural history may be seen to be a thing of national importance, and worthy of real national support. At present, as Sir William observes, "the largest museum yet erected, with all its internal fittings, has not cost so much as a single fully-equipped line-of-battle ship, which in a few years may be either at the bottom of the sea, or so obsolete in construction as to be worth no more than the materials of which it is made."

Pregnant with meaning, not only from its matter, but also by its place of delivery, is the paper read before the Church Congress in 1883, on "the sequence of events which have taken place in the universe, to which the term 'evolution' is now commonly applied." Great as was the import of this communication to such an audience fifteen years ago, it is more than probable that a similar Congress at the present day would appreciate the subject as less disturbing and more familiar. Than Sir William Flower no better enunciator could have been found of the "doctrine of continuity" to a body of men whose studies lay outside a philosophical conception which yet made its presence felt in all regions of thought. It required in such an assembly the cautious handling of an expert, so that the teaching of the naturalist should neither appear as an inerrant dogma, nor, as is sometimes the case, a stream of biological assumptions or suggestions. In fact, among some zoologists, and other speculative writers of the day, an opinion by the author of this book may well be considered, "that natural selection, or survival of the fittest, *has, among other agencies*, played a most important part in the production of the present condition of the organic world, and that it is a universally acting and beneficent force continually tending towards the perfection of the individual, of the race, and of the whole living world." We have ventured to italicise a few words.

Space will only allow us to draw further attention to two really zoological treatises (XIV. and XV.)—on Whales past and present—which it should be noted are to be found in this volume; to some well-known anthropological addresses; and to biographical sketches of Rolleston, Owen, Huxley, and Darwin.

A Student's Text-Book of Zoology. By ADAM SEDGWICK, M.A., F.R.S. Vol. I. Swan Sonnenschein & Co., Limited.

THE appearance of this work is but little subsequent to the Text-Book of Parker and Haswell, recently noticed in these pages (*ante*, p. 132). Its aim is distinctly stated—"to place before English students of Zoology a treatise in which the subject was dealt with on the lines followed with so much advantage by Claus and his predecessors in their works on Zoology." This volume—the first—deals with the whole of the animal kingdom except the Arthropoda, the Echinodermata, and the Chordata, which will form the subject of the second volume. A third may probably be issued devoted generally to the facts and principles of Zoology.

Books of this character can be reviewed in two ways: either criticised by a specialist for some weakness or novelty in his own particular study to which he may have devoted his life; or brought to the notice of the general zoologist or naturalist, as a comprehensive whole, where the latest knowledge may be sought by the specialist on the general subject, and where the general student may expect to find special information on the concrete subject. The labour and anxiety to produce a modern text-book is now necessarily enormous, and a feeling of great responsibility arises in writing a notice of a work which, if it fulfils its purpose, must prove a technical encyclopædia to zoologists who study only the histories of the mature life of animals, and who seek instruction in deeper biological principles. Our pages, we need hardly remind the reader, are devoted to the former, but we all frequently need an authoritative guide to the latter. It is thus a mistake to altogether appreciate these works as students' text-books; they cover a wider area, and are, in the true sense, works of reference.

Prof. Sedgwick is an advocate of a preliminary knowledge of Zoology being acquired by the study of types, a method largely introduced into this country by Huxley, as a basis from which extended studies can be made, and the present work is stated as designed to assist those further studies. The study of types is now an excellent and almost universal method, though Prof. Ray Lankester has recently proposed that a second course might be pursued in the study of "exceptional, puzzling, and debateable animals," by which *significance* of structure could be considered as the means of *discussing* affinities.

The classification is generally in agreement with that of the recent work of Parker and Haswell, but with some differences. Thus those authors appended the Nemerteans to the Phylum Platyhelminthes, whilst Prof. Sedgwick treats them as a distinct Phylum—Nemertea. He also considers the Polyzoa and Brachiopoda as constituting distinct Phylla, but which Parker and Haswell treated as classes of Molluscoida. These authors also placed the Mollusca after the Arthropoda, whilst in the work under present notice they follow the Rotifera. The position of the Echinodermata is also differently considered. We simply draw attention to the differences in method of these two notable publications because they have both appeared almost synchronously, and also because modern classifications are taken as representative of current views on derivation.

Although this text-book is necessarily of a technical description, there are still scattered some of those facts or incidents in life narratives so appreciated by the contributors and readers of this Magazine. As an instance, we may quote from the general remarks on the Mollusca. About 25,000 species are known, and are found in the sea to a depth of nearly 3000 fathoms. "Their duration of life, where known, varies from one to thirty years; the Pulmonates generally live two years, but the garden snail has been known to live five years. The oyster is adult at about five years, and lives to ten years. The *Anodonta* do not arrive at sexual maturity till five years, and live for twenty or thirty years."

We shall await with interest the completion of the work.

Birds in London. By W. H. Hudson, F.Z.S. Longmans, Green & Co.

Birds in London must be the ornithological subjects of the many who can seldom escape from the metropolis, or who, with Dr. Johnson, like to feel the high tide of life at Charing Cross. Though the scene of this book is neither laid in the City nor a restricted London, but embraces much suburban territory dear to villadom, including even Richmond Park, the general area is one over which the builder has now much sway, and whose wild nature, where not curtailed, is at least much bricked in. Consequently we are prepared for the tale which is told. "For many years there have been constant changes going on in the bird population, many species decreasing, a very few remaining stationary, and a few new colonists appearing; but, generally speaking, the losses greatly exceed the gains." The Magpie and Jay still exist at a distance of six and a half to seven miles from Charing Cross, and the Woodpigeons have come to town and apparently come to stay. Both the Moorhen and Dabchick have settled down in St. James's Park; the Jackdaw and Owl are still resident in Kensington Gardens; the Sparrow is always with us, to which in numbers the Starling ranks next, though "the Starlings' thousands are but a small tribe compared to the Sparrows' numerous nation." We have all seen Fieldfares in the suburbs, but in 1896 a few alighted in a tree at the Tower of London. Mr. Hudson remarks the disappearance of the Greenfinch from several localities, and we think that most observers will have noticed the scarcity of this bird round London. Forty years ago it was a very abundant bird round Nunhead, when schoolboy inspection of the store-cages of the professional catcher seldom failed to discover it as the principal captive, and many a "bright" bird have we purchased for a penny. Now the erstwhile market gardens have disappeared, thanks to the industry of the builder and the increase of the population, but Mr. Hudson reports the bird as still sheltered in Nunhead Cemetery.

The great enemy of the London birds is the Cat. "Millions of Sparrows are yearly destroyed by Cats in London," and the author thinks "that not more than two young birds survive out of every dozen of all the Sparrows that breed in houses." The number of these feline marauders in London is estimated at not less than half a million, while ownerless Cats, which are thus thrown more on their own resources, are considered to reach in the same area the prodigious quantity of from eighty to a hundred thousand. These furies hunt the parks by night. "The noisy clang of the closing park gates is a sound well known to the Cats in the neighbourhood; no sooner is it heard than they begin to issue from areas and other places where they have been waiting, and in some spots as many as half a dozen to a dozen may be counted in as many minutes crossing the road and entering the park at one spot." No wonder that lovers of birds—either wild or in captivity—are "death on Cats."

This book contains no lists of birds, but is devoted to general facts, many of which are of an anecdotal character. Some good stories are told, and perhaps one of the most piquant is that of Mr. Cunninghame Graham writing to an eminent ornithologist for advice as to obtaining Rooks for his trees, and receiving a lengthy reply "pointing out the fallacies of Socialism as a political creed, but saying nothing about Rooks." Mr. Hudson writes in a delightfully unconventional manner, a by no means too frequent occurrence in these days; he is also not afraid of "calling names." Thus a local birdstuffer "who killed the last surviving Magpies at Hampstead" is not inappropriately styled a "miscreant," and the keeper who destroyed the last Ravens' nest in Hyde Park justly earns the title of "injurious wretch." The author is a true lover of birds, as his own words best testify. "Without the 'wandering Hern,' or Buzzard, or other large soaring species, the sky does not impress me with its height and vastness; and without the sea-fowl the most tremendous sea-fronting cliff is a wall which may be any height; and the noblest cathedral without any Jackdaws soaring and gambolling about its towers is apt to seem little more than a great barn, or a Dissenting chapel on a gigantic scale."

EDITORIAL GLEANINGS.

"Mimicry," of which we hear so much, and know so little; a theory well substantiated by facts, but too often scandalized by loose suggestions and more or less ingenious guesses; a doctrine somewhat neglected by zoologists, and far too much in the hands of the evolutionary camp followers,—still demands, in very many details, verification by experiment. Mr. Frank Finn, the Deputy-Superintendent of the Indian Museum, Calcutta, has, since 1894, undertaken this work in the province in which he now resides, and has published the results of thorough and well designed experiments in a series of papers (i.–iv.) in the 'Journal' of the Asiatic Society of Bengal. The details of these experiments, carefully studied, will serve to qualify much current misconception; at the same time the results are not negative, but, on the whole, confirmative. In butterflies the *Danainæ* are generally considered as highly protected. With birds, Mr. Finn tells us:—"The common Babblers (*Crateropus canorus*) ate the Danaine butterflies readily enough in the absence of others, but when offered a choice showed their dislike of these 'protected' forms by avoiding them. This avoidance was much more marked when the birds were at liberty, though even so a few of the objectionable butterflies were eaten." "In several cases I saw the birds apparently deceived by mimicking butterflies. The common Babbler was deceived by *Nepheronia hippia*, and Liothrix by *Hypolimnas misippus*. The latter bird saw through the disguise of the mimetic *Papilio polites*, which, however, was sufficient to deceive the Bhimraj and King Crow. I doubt if any bird was impressed by the mimetic appearance of the female *Elymnias undularis*. But this is not a first-rate imitation, and a mimic is put to a very severe test when offered to a bird in a cage or aviary."

As a result of the whole series of experiments, the following conclusions are reached by Mr. Finn:—"1. That there is a general appetite for butterflies among insectivorous birds, even though they are rarely seen when wild to attack them. 2. That many, probably most, species dislike, if not intensely, at any rate in comparison with other butterflies, the 'warningly-coloured' *Danainæ, Acræa violæ, Delias eucharis*, and *Papilio aristolochiæ;* of these the last being the most distasteful, and the *Danainæ* the least so. 3. That the mimics of these are at any rate relatively palatable, and that the mimicry is commonly effectual under natural conditions. 4. That each bird has to separately acquire its experience, and well remembers what it has learned." And that, therefore, on the whole, the theories of Bates and Wallace are supported by the facts detailed.

The following extracts are from an excellent summary in the 'Globe':—

"In his introduction to a Report just issued by the Scotch Fishery Board relating to investigations on the life-history of Salmon, Dr. D. Noel Paton (Superintendent of the Laboratory) states that the curious life-history of the Salmon has always been a subject of the deepest interest, not only to the zoologist and physiologist, but also to the sportsman and the fisherman. In spite of the most careful study by scientific investigators, the migrations of the Salmon, and the various changes in condition which it undergoes, are even now far from being fully understood, and the careless observations and foolish traditions of keepers, fishermen, and ghillies have only served to involve the matter in a deeper cloud of mystery.

"*Questions to be answered.*—What force urges the fish to leave its rich feeding-ground in the sea? Is it necessary that it should enter fresh water in order to perform the act of reproduction? Does it require or procure any food during its sojourn in the river, and, if not, how is it able to maintain life, and to construct its rapidly-growing genital organs? In the female the growth of these is enormous. In April or May the ovaries constitute only about 1.2 per cent. of the weight of the fish.—in November they are no less than 23.3 per cent. In a fish of 30 lbs. in the spring they weigh about 120 grms.—in November they weigh over 2000 grms. The increase in the testes in the male is not so marked, but is sufficiently striking. In April or May these organs are about 0.15 per cent. of the weight of the fish, while in November they are 3.3 per cent. From what are these structures formed? As they grow, the muscle, as is well known, undergoes marked and characteristic changes. Not only does it diminish in amount as the season advances, so that the fish which have been some time in the river become smaller in the shoulder and back, but it loses its rich, fatty character, while it becomes paler in colour. Are these changes in the muscle connected with the growth of the ovaries and testes? And if so, in what manner and to what extent? On the other hand, in fighting its way up rapids and over falls an enormous amount of muscular work is accomplished by the Salmon. Whence is the energy for this work obtained? Are the changes in the muscle connected with the performance of this work, and if so, to what extent are these changes connected with the muscular work, and to what extent with the growth of the genitalia? Lastly, the question arises, to what extent do these changes in the muscle modify the value of the flesh as a food stuff?

"*Facts established.*—In the investigation of some of these questions, most excellent work has already been done, not only in Holland and Germany upon the Salmon in the Rhine by Dr. Hoek and Professor Miescher Ruesch, but also by Mr. Archer, the Inspector of Salmon Fisheries for Scotland, in conjunction with Mr. Grey and Mr. Tosh. The careful series of observations embodied in the annual reports are well worth careful study by the zoologist and the Salmon fisher. They should help to dispel the absurd traditions which cling around the history of the Salmon, and to pave the way for the complete solution of many of the problems we have enumerated. The present investigation is a continuation and amplification of these researches, and would have been impossible without these previous laborious studies. Briefly stated, these investigations of the Fishery Board have established the following facts:—That some Salmon spawn every year, though there is strong evidence that all do not do so. That the genitalia of fish coming from the sea develop steadily from April on to the spawning time, and that the genitalia of Salmon in the earlier summer months develop more rapidly than those of Grilse. That the proportion of the weight of the fish is constant for all sizes of Salmon. That Salmon continue to feed while in the sea until September. This is shown, firstly, by the presence of food in the stomach of a certain proportion of the fish captured, and, secondly, by the fact that the fish leaving the sea are somewhat heavier—from 2 to 3 per cent.—in August and September than they are in the earlier months, whereas if they had entirely stopped feeding they should have been lighter. If Salmon do feed in the sea, it is perhaps curious that food should be found in so small a percentage of those captured at the mouths of rivers. But it must be remembered that the estuary of the river is not the natural feeding-ground of the Salmon, and it is probably only by chance that food is still in the stomach of fish captured there."

"Mr. Consul Hearn, in his latest report on the trade of Bordeaux to the Foreign Office, makes some striking observations as to the folly of the destruction of birds. He points out that the appearance of the *Cochylis*, a most destructive insect, is contemporary with the destruction of small birds in the vineyards. No sooner does the 'chasse' open than every man and boy is seen with a gun, stalking and 'potting' every small bird he can get near enough to. The consequence is that there is literally no bird life among the vines, and consequently insect life now reigns supreme. On one property alone, from July 20th to Sept. 10th, 5000 days' labour of women and children was alone employed in looking for and destroying the eggs and larvæ of this insect. 'But if only birds were allowed free action they would,' the Consul says, 'assuredly, gladly accomplish this work, and the women and children might be employed in more remunerative labour. In the streets of Bordeaux, during the autumn and winter, Thrushes and Starlings are offered for sale by thousands, and yet these birds live exclusively on insects.' It is not surprising to learn that a Bill is shortly to be introduced into the Chamber for the protection of birds 'useful to agriculture.'"—*Westminster Gazette.*

It is evident that the crusade against murderous millinery needs to be renewed, and that in quarters where one would have supposed it to be least necessary. A lady communicates to the 'Christian World' the startling fact that at the May meetings she has noticed Ospreys everywhere, even on the platform. At one important ladies' missionary meeting, both the lady who presided and a missionary who described the cruelties of Indian life wore Ospreys. She supposes they have been told that their plumes were imitation, but adds that in nineteen cases out of twenty they were real.

In 'Popular Science News' (New York), Mr. John Mortimer Murphy has contributed a most interesting article on the Alligator. We read that "the Alligator is rapidly disappearing in the settled regions of Florida, and becoming scarcer every day even in such remote regions as the Everglades, owing to the war of extermination waged against it by hide-hunters, taxidermists, and dealers in curiosities. These pursue it night and day, year in and year out. The little fingerlings just out of the nest are in great demand, as they are worth from two to three dollars per hundred in the local markets. The 'curio' dealers who purchase them often resell them at a dollar each to northern visitors, or else they kill and stuff them into card-plates, cigar-holders, or whatever else their fancy suggests, and dispose of them at good prices. The young are frequently lured from their lurking-places by a poor imitation of the grunts of their mother, and men expert in mimicking her may capture a large number in a day, as they respond promptly to the calls, and pour out of cavities in hot haste to see the caller. The most expert ''gator callers' I ever knew were swamp rangers, both white and black, who were born and bred within a short distance of an Alligator swamp, and therefore knew every intonation of the saurian's voice. These men could make a matron charge wildly at them across a broad stream by imitating the frightened cries of her young, or lure a decrepit old bull by mimicking the grunts of the female. They could, in fact, delude both old and young, and often earned good sums by their art."

Enormous flocks of Starlings have this year taken possession of and made their nests in the huge chimneys of Buckingham Palace, and these in great numbers forage for their food in the private grounds of the palace.—*Daily Chronicle*, May 9th.

The announcement of the untimely death of Dr. C. Herbert Hurst, formerly on the staff of the Zoological Department of the Owens College, will be received with general regret. We take the following obituary notice from the columns of 'Nature':—"Dr. Hurst was an alumnus of the Manchester Grammar School, and studied biology under Professor Huxley with conspicuous success. After some experience as a resident science master in a boys' school he entered the Owens College as a student in 1881, and in January, 1883, was appointed to the post of Demonstrator and Assistant Lecturer in Zoology under the late Professor Milnes Marshall. For eleven years he filled this office with conspicuous diligence and success, and not only earned the grateful recollection of several generations of students of the College, but also laid under obligation a much wider circle of zoologists by his share in the production of the 'Text-book of Practical Zoology,' which has made the names of Marshall and Hurst familiar in every biological laboratory, not only in this country but in the world. In 1889 he took advantage of a prolonged leave of absence, granted by the College authorities, to pursue his studies at the University of Leipzig, where he carried out a valuable investigation into the life-history of the Gnat (*Culex*), for which he was awarded the degree of Ph.D. Latterly he had undertaken what he termed 'a systematic criticism of biological theory,' in the course of which he published discussions on 'The Nature of Heredity,' 'Evolution and Heredity,' 'The Recapitulation Theory,' and other kindred topics. In these essays certain modern views were subjected to trenchant and unsparing criticism, for Dr. Hurst was a keen controversial writer, and never hesitated to express himself clearly and forcibly, even at the risk of obloquy and unpopularity. His last writings were, 'The Structure and Habits of *Archæopteryx*,' and 'A New Theory of Hearing.' In 1895 Dr. Hurst left the Owens College to fill a similar position in the Royal College of Science, Dublin. His premature death deprives Zoology of a zealous and upright worker who was most esteemed by those who knew him best."

To compass the death of an Elephant is no light matter. Sportsmen by the head-shot now no longer pursue the slow, costly, and painful method described by Gordon Cumming. Recently, an Elephant contained in "Barnum and Bailey's Show," which had been visiting Liverpool, exhibited traits which, in safety to the public, demanded its destruction. Strangulation was the method selected as being the most merciful, and the following particulars are extracted from 'Nature':—"At the appointed hour those specially invited, among whom were several veterinary surgeons, Dr. Forbes, Director of the Liverpool Museum (to whom the body was generously to be handed over as a gift from Mr. Bailey to the museum), Dr. Roberts and Mr. Burnham, of the Society for the Prevention of Cruelty to Animals, found the Elephant standing quietly in one of the large tents, in line with some twenty to thirty others. A new Manilla rope was loosely wound three times around its neck, and its legs, fully stridden, were securely chained each to a post firmly driven into the ground alongside each limb. The animal was intentionally not isolated from its fellows, as it was feared that if separated by itself it would become restive and ill-tempered. The rope surrounding the beast's neck had one end secured to three strong pillars in the ground, some distance away and slightly in advance of the fore feet; and the other, which terminated in a loop, was hooked to a double series of pulleys, to the tackle of which ninety men were attached. When all was ready, the slack was gently, quietly, and without any apparent annoyance to the Elephant, which kept on eating hay, taken in till the coils round its neck were just taut. The word was then given, 'Walk away with the rope.' Amid perfect silence the well-disciplined company walked away with it without the least effort. So noiselessly and easily did everything work that, unless with foreknowledge of what was going to take place, one might have been present without realizing what the march of these men meant. The Elephant gave no sign of discomfort, either by trunk or tail; its fellows standing close by looked on in pachydermatous unconcern; and at the end of exactly thirty seconds it slowly collapsed, and lay down as if of its own accord. There was absolutely no struggle, and no motion, violent or otherwise, in any part of the body, nor the slightest indication of pain. In a few seconds more there was no response to the touch of its eyelashes or other parts of the eye, and this condition remained for a few minutes; but through, perhaps, the leakage into the chest of a small quantity of air, some slight sensitiveness returned to the eye, seen on touching its inner angle, though not the cornea. On slightly tightening up the rope, the chest gave one or two short throbs, and after six and a half minutes all movements ceased, and sensation was entirely lost; while at the end of thirteen minutes from the order to 'walk away,' the eye had become rigid and dim."

As we go to press we have heard with the greatest regret of the death of Mr. Osbert Salvin, the well-known ornithologist and entomologist. An obituary notice will appear in our next issue.

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